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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAN, CON P

ART UNIT PAPER NUMBER

2644

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/576,039

Applicant(s)

PHELPS, ANDREW

Examiner

Con P. Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 8** is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are those of a radiotelephone, which is mentioned in preamble.

3. **Claim 9** is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are those of a portable radio device, which is mentioned in preamble.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. **Claims 1, and 4-6** are rejected under 35 U.S.C. 102(b) as being anticipated by Ricoh JP60-075199 (cited by Applicant, hereinafter, "Ricoh' 199")

Regarding **claim 1**, Ricoh' 199 teaches an audio apparatus (see Abstract, Fig. 3, and Fig. 4) comprising:

a modulator (multiplier 7) for modulating a first ultrasonic signal (i.e., carrier) with an audio signal (signal source 1) to provide a second ultrasonic signal (i.e. multiplied signal); a transducer (wave vibrator array 9) for converting the second ultrasonic signal (multiplied signal) into an ultrasonic pressure wave for transmission into a non-linear medium (i.e., air) to allow demodulation (irradiating a modulated wave, and reproducing a audible tone, i.e., demodulating) of the ultrasonic pressure wave and thereby generate an audio pressure wave representative of the audio signal (audible tone, Abstract, lines 3-4, lines 14-15); processing means (square root converter 5) for modifying the audio signal to compensate for the demodulating properties of the non-linear medium (see Abstract, lines 8-9, lines 14-15); and coefficient device (2) for modifying the audio signal to compensate for the conversion characteristics of the transducer (9).

Regarding **claim 4**, Ricoh' 199 further teaches audio apparatus according to claim 1, wherein the processing means comprises a double integration filter (10) and a square root operator (5; see Fig. 4, and respective portions of the specification).

Regarding **claim 5**, Ricoh' 199 further teaches audio apparatus according to claim 4, wherein the means for modifying (coefficient device 2) is disposed between the double integration filter (10) and the square root operator (5; see Fig. 4, and respective portions of the specification).

Regarding **claim 6**, Ricoh' 199 further teaches audio apparatus according to claim 1, wherein the means for modifying (coefficient device 2, i.e., "coefficient") is a digital filter.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over of Ricoh JP60-075199 (cited by Applicant, hereinafter, "Ricoh' 199") in view of Nippon Columbia JP-58-119293 (cited by Applicant, hereinafter, "Nippon' 293").

Regarding **claim 2**, Ricoh' 199 teaches an audio apparatus according to claim 1. However, Ricoh' 199 does not explicitly specify wherein the first ultrasonic signal is amplitude modulated with the audio signal.

Nippon' 293 teaches an electroacoustic transducer in which an ultrasonic signal is amplitude modulated with the audio signal (see Abstract, line 11).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate the Nippon' 293 teaching with Ricoh' 199 for purpose of having smooth frequency characteristic over a broad band of an audible frequency band, as suggested by Nippon' 293 in Abstract, line 1-2.

8. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over of Ricoh JP60-075199 (hereinafter, "Ricoh' 199") in view of Norris et al. U.S. Patent 6,229,899 (cited by Applicant, hereinafter, "Norris").

Regarding **claim 3**, Ricoh' 199 teaches audio apparatus according to claim 1. However, Ricoh' 199 does not explicitly disclose frequency of the first is equal to or greater than 40 kHz.

Norris teaches the ultrasonic carrier wave frequency from 40 to 60 Khz for amplitude modulation (col. 4, lines 46-53).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate the Norris teaching with Ricoh' 199 in view of Nippon' 293 for purpose of having stronger power output at higher frequencies in a given transducer, as suggested by Norris in column 5, lines 30-31.

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9. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over of Ricoh JP60-075199 (cited by Applicant, hereinafter, "Ricoh' 199") in view of Tanaka et al. U.S. Patent 4,823,908 (cited by Applicant, hereinafter, "Tanaka").

Regarding **claim 7**, Ricoh' 199 teaches audio apparatus according to claim 1. However, Ricoh' 199 does not explicitly disclose wherein the characteristics of the means for modifying are empirically derived by tone adjustment.

Tanaka teaches a parametric loudspeaker system wherein the characteristics of the means for modifying are empirically derived by tone adjustment (see Fig. 22, 23, 24, 26, and respective portions of the specification; col. 12, lines 43-53).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate the Tanaka teaching with Ricoh' 199 for purpose of providing with an acoustic filter capable of permitting the passage of only the audio frequency, as suggested by Tanaka in column 4, lines 34-36.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office at telephone number (703) 306-0377.

cpt CLJ  
October 20, 2003

  
FORESTER W. ISEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2630